

### **ABSTRACT OF THE DISCLOSURE**

A wavelength division multiplex (WDM) optical cross-connect (OXC) has a plurality ( $N \times M$ ) of input and output channels ( $i1$  to  $iM$ ;  $o1$  to  $oM$ ) for through traffic. A first group of optical switching matrices ( $SI-I$  to  $SI-N$ ) is provided for connecting the through traffic input channels ( $i1$  to  $iM$ ) to the output channels ( $o1$  to  $oM$ ), wherein each through traffic input channel ( $i1$  to  $iM$ ) is connected to an input of a switching matrix ( $SI-I$  to  $SI-N$ ) of the first group and each through traffic ( $o1$  to  $oM$ ) is connected to an output of the switching matrix ( $S1-1$  to  $S1-N$ ). Additionally a plurality ( $P$ ) of input channels ( $a1$  to  $aP$ ) and/or output channels ( $o1$  to  $oP$ ) is provided for adding/dropping traffic. Each add/drop input/output channel ( $a1$  to  $aP$ ,  $o1$  to  $oP$ ) is connected to an input/output of a second group of switching matrices ( $S2'-1$  to  $S2'-AD$ ). The outputs/inputs of the second group of switching matrices are connected to inputs of a third group of switching matrices ( $S3-1$  to  $S3-2M-1$ ) or outputs of a fourth group of switching matrices ( $S4-1$  to  $S4-(2M-1)$ ) and the outputs/inputs of the third/fourth group of switching matrices are connected to inputs/outputs of the first group of switching matrices such that the switching matrices of the second, third and first groups of the first, fourth and second groups each form a Clos network.